What is claimed:

1. A light management system comprising:

a prism assembly having at least one beam splitting component utilizing a cholesteric layer configured to pass and reflect light beams to predetermined faces of the beam splitting component.

2. The light management system according to Claim 1, wherein the light management system is in a projection television.

3. A prism assembly, comprising:

an input beam splitter comprising an input face, a first exit face, and a second exit face;

a processing beam splitter comprising an input face and an exit face, wherein the input face of the processing beam splitter is coupled to the first exit face of the input beam splitter;

a cholesteric based beam splitter comprising an input face and an exit face, wherein the input face of the cholesteric based beam splitter is coupled to the second exit face of the input beam splitter; and

an output beam splitter having a first input face, a second input face, and an output face, wherein the first input face of

the output beam splitter is coupled to the exit face of the processing beam splitter and the second input face of the output beam splitter is coupled to the exit face of the cholesteric beam splitter.

4. The prism assembly according to Claim 3, wherein the input beam splitter is configured to divide a light beam entering the input face of the input beam splitter into a first light beam that exits the first exit face of the input beam splitter and a second light beam that exits the second exit face of the input beam splitter.

5. The prism assembly according to Claim 3, wherein:

the cholesteric beam splitter comprises a dual cholesteric layer configured to,

direct a first part of a light beam entering the input face of the cholesteric based beam splitter to a first processing face of the cholesteric beam splitter,

direct a second part of the light beam entering the input face of the cholesteric based beam splitter to a second processing face of the cholesteric beam splitter, and

direct light beams emanating from the first and second processing faces to the exit face of the cholesteric based beam splitter.

6. The prism assembly according to Claim 5, wherein:

the output beam splitter is configured to direct light beams entering the first input face of the output beam splitter and light beams entering the second input face of the output beam splitter to the exit face of the output beam splitter.

7. The prism assembly according to Claim 5, wherein the input beam splitter, the processing beam splitter, the cholesteric based beam splitter, and the output beam splitter are arranged in a cube.

8. The prism assembly according to Claim 3, wherein the cholesteric based beam splitter comprises a beam splitting component with at least one cholesteric layer.

9. The prism assembly according to Claim 3, wherein the processing beam splitter comprises a cholesteric based beam splitter comprising at least one cholesteric layer.

10. The prism assembly according to Claim 3, wherein the cholesteric based beam splitter comprises a beam splitting component comprising two cholesteric layers.

11. The prism assembly according to Claim 10, wherein the cholesteric based beam splitter comprises 2 prisms generally abutted at diagonals of the prisms and the cholesteric layers are disposed on at least one diagonal of the prisms.

12. The prism assembly according to Claim 10, wherein the cholesteric layers comprises a blue cholesteric for directing blue light to a first processing face of the cholesteric based beam splitter and a red cholesteric for directing red light to a second processing face of the cholesteric based beam splitter.

13. The prism assembly according to Claim 6, further comprising a quarter waveplate placed in a lightpath between the input beam splitter and cholesteric based beam splitter and configured to circularly polarize light entering the input face of the cholesteric based beam splitter.

14. The prism assembly according to Claim 13, wherein:

the quarter waveplate is a right hand circular polarizer; and

the blue and red cholesterics are mounted at 45 degrees to the lightpath and are reflective of light having different polarizations.

15. The prism assembly according to Claim 14, wherein one of the cholesterics is reflective of right hand polarized light and the other cholesteric is reflective of left hand polarized light.

16. The prism assembly according to Claim 3, further comprising processing devices mounted on each of three processing faces of the processing beam splitter and cholesteric based beam splitter.

17. The prism assembly according to Claim 16, wherein the processing devices are microdisplays.

18. The prism assembly according to Claim 17, wherein the microdisplays are directly mounted on the processing faces.

19. The prism assembly according to Claim 13, further comprising an additional quarter waveplate positioned in each lightpath directed by a cholesteric.

20. The prism assembly according to Claim 17, further comprising a polarization sensitive microdisplay mounted on each of the processing faces of the cholesteric based beam splitter.

21. A kernel, comprising:

a set of optical components configured to divide input light into separate light beams and direct each of the separate light beams into corresponding processing devices and recombine outputs of the processing devices into a kernel output light beam;

wherein at least one of the optical components comprises a cholesteric layer.

22. The kernel according to Claim 21, wherein the separate light beams comprise three separate light beams.

23. The kernel according to Claim 21, wherein the processing devices comprise processing devices configured to add content to its corresponding light beam.

24. The kernel according to Claim 21, wherein the processing devices comprise a red processing device configured to add red content to its corresponding light beam, a green processing device configured to add green content to its corresponding light beam, and a blue processing device configured to add blue content to its corresponding light beam.

25. The kernel according to Claim 21, wherein the processing devices comprise microdisplays.

26. A kernel assembly, comprising:

a set of four beam splitting devices arranged in a cube; and

three reflective microdisplays each individually and externally mounted on three faces of the beam splitting devices;

wherein:

one of the beam splitting devices is a cholesteric based beam splitter.

27. The kernel assembly according to Claim 26, wherein the kernel is configured to direct individual light beams to each of the three microdisplays and recombine reflections from the three microdisplays into an output light beam.

28. A prism assembly, comprising:

a set of optical components arranged in pathlength matched positions such that optical distances from each set of processing faces of the optical components to a reference plane are equivalent; and

at least one of the optical components comprises a cholesteric layer.

29. The prism assembly according to Claim 28, wherein the reference plane is a focal plane of the prism assembly.

30. The prism assembly according to Claim 28, wherein the reference plane is an output face of the prism assembly.

31. A prism assembly comprising:

an input beam splitter having a first output and a second output;

a first component beam splitter coupled to the first output of the input beam splitter;

a second component beam splitter coupled to the second output of the input beam splitter; and

an output beam splitter coupled to an output of the first component beam splitter and an output of the second component beam splitter;

wherein at least one of the first component and second component beam splitters is a cholesteric based beam splitter.

32. The prism assembly according to Claim 31, wherein at least one face of the first component beam splitter along with two faces of the second component beam splitter are arranged in pathlength matched positions.

33. The prism assembly according to Claim 32, further comprising an optical coupling fluid disposed between at least two of the beam splitters.

34. The prism assembly according to Claim 33, wherein the optical coupling fluid is disposed between faces of at least two of the beam splitters.

35. The prism assembly according to Claim 31, further comprising an optical coupling fluid disposed between the beam splitters.

36. The prism assembly according to Claim 35, wherein the optical coupling fluid is an index matching fluid having an index of refraction closely matching an index of refraction of optical components contacting the coupling fluid.

37. The prism assembly according to Claim 35, wherein the optical coupling fluid is a mineral oil based fluid.

38. The prism assembly according to Claim 31, wherein the cholesteric based beam splitter comprises a beam splitter having a dual cholesteric layer.

39. The prism assembly according to Claim 38, wherein the dual cholesteric layer comprises a first color cholesteric layer having a first polarization and a second color cholesteric having a second polarization.

40. The prism assembly according to Claim 39, wherein the second polarization is opposite to the first polarization.

41. The prism assembly according to Claim 39, wherein the first polarization is right hand polarization, and the second polarization is left hand polarization.

42. A prism assembly comprising at least one beam splitting component comprising at least one cholesteric layer.

43. The prism assembly according to Claim 42, wherein the cholesteric layer is configured to reflect light of a first polarization and pass light of a second polarization.

44. The prism assembly according to Claim 43, further comprising other optical components configured to present light beams to the cholesteric layer, wherein a first of the light

beams is to be reflected by the cholesteric layer and a second of the light beams is to be passed by the cholesteric layer.

45. The prism assembly according to Claim 42, wherein the cholesteric layer is a dual cholesteric layer.

46. The prism assembly according to Claim 42, wherein the at least one beam splitting component comprises 2 prism components oriented such that diagonals of the 2 prism components are facing each other and at least one cholesteric layer disposed between the diagonals of the prisms.

47. The prism assembly according to Claim 42, wherein three faces of the beam splitting components are arranged in pathlength matched positions.

48. The prism assembly according to Claim 42, wherein said at least one beam splitting component is arranged in pathlength matched position with respect to a second beam splitting component.

49. The prism assembly according to Claim 42, wherein the cholesteric layer comprises a dual layer cholesteric.

50. The prism assembly according to Claim 49, wherein the dual layer cholesteric comprises one of blue and red cholesterics, blue and green cholesterics, red and green cholesterics.

51. The prism assembly according to Claim 49, wherein the cholesteric layers are sensitive to different light polarizations.

52. The prism assembly according to Claim 49, wherein one of the cholesteric layers is sensitive to right hand circularly polarized light and the other cholesteric layer is sensitive to left hand circularly polarized light.

53. A display device comprising a prism assembly having at least one cholesteric layer.

54. The display device according to Claim 53, wherein the display device is a television.

55. A display device, comprising:

a set of four beam splitting devices arranged in a cube; and

three reflective microdisplays each individually mounted on three faces of the beam splitting devices and external to the cube;

wherein:

one of the beam splitting devices is a cholesteric based beam splitter.

56. The display device according to Claim 55, wherein the display device is a television.

57. A method of constructing a prism assembly comprising:

fixing a set of beam splitting devices in position; and

filling voids between the beam splitting devices with an optical coupling fluid;

wherein at least one of the beam splitting devices comprises a cholesteric beam splitter.

58. The method according to Claim 57, wherein the cholesteric beam splitter comprises 2 prism components oriented such that diagonals of the 2 prism components are generally abutting each other and at least one cholesteric layer disposed between the diagonals of the prisms.

59. A prism assembly means, comprising:

a cholesteric means; and

at least one means for directing individual light beam paths internal to the prism assembly toward predetermined faces of the prism assembly means using the cholesteric means.

60. The prism assembly means according to Claim 59, wherein said at least one means comprises a set of beam splitting components having at least three faces arranged in pathlength matched positions.

61. A beam splitter, comprising

a first optical element having a first beam splitting face;

a second optical element having a second beam splitting face generally abutting the first beam splitting face; and

a cholesteric layer disposed between the first and second beam splitting faces.

62. The beam splitter according to Claim 61, wherein the cholesteric layer is a dual cholesteric layer.

63. The beam splitter according to Claim 61, wherein the dual cholesteric layer comprises one of a red cholesteric layer and a blue cholesteric layer, a blue cholesteric layer and a

green cholesteric layer, and a red cholesteric layer and a green cholesteric layer.

64. The beam splitter according to Claim 61, wherein:

the first and second optical elements are prisms, and

the first and second beam splitting faces are diagonals of the prisms.

65. The beam splitter according to Claim 64, wherein the prisms are held together at the diagonals via an optical adhesive.

66. The beam splitter according to Claim 65, wherein the cholesteric layer comprises a dual cholesteric layer.

67. The beam splitter according to Claim 66, wherein the dual cholesteric layer comprises one of a red cholesteric layer and a blue cholesteric layer, a blue cholesteric layer and a green cholesteric layer, and a red cholesteric layer and a green cholesteric layer.

68. The beam splitter according to Claim 67, wherein the cholesteric layers have different polarization sensitivities.

69. The beam splitter according to Claim 68, wherein:

a first layer of the dual layer is reflective of right hand circular polarized light of a same color as the first cholesteric layer; and

a second layer of the dual cholesteric layer is reflective of left hand circularly polarized light of a same color as the second cholesteric layer.

70. The beamsplitter acording to Claim 61, wherein the first optical element and the second optical element are placed in pathlength matched positions.